


	Tire pressure monitor function	GF40.15-P-0001MCU
	Tire pressure monitor (TPM [RDK]) location of components	GF40.15-P-0001-06MCU
	Tire pressure monitor (TPM [RDK]) block diagram	GF40.15-P-0001-07MCU
 PE	Wiring diagram for tire pressure monitor control unit	PE40.15-P-2101MCU
	Overview of system components for tire pressure monitor (TPM), component description	GF40.15-P-9996MCU

## BASIC KNOWLEDGE > TIRE PRESSURE MONITOR CONTROL UNIT, COMPONENT DESCRIPTION - GF40.15-P-5124MCU >

### MODEL 451.3/4

Fig 1: Locating TPM (RDK) Control Unit



Courtesy of MERCEDES-BENZ OF NORTH AMERICA.

### Location

The TPM [RDK] control unit is located in the footwell on the driver-side.

### Task

The TPM [RDK] control unit realizes the following functions:

- Tire pressure temperature compensation
- Warning for pressure loss
- Status monitoring

The TPM [RDK] control unit receives data telegrams via two-way radio from the following sensors:

- Left front TPM [RDK] wheel sensor (A69/1)
- Right front TPM [RDK] wheel sensor (A69/2)
- Left rear tire pressure monitor sensor (A69/3)
- Rear right tire pressure control wheel sensor (A69/4)

The data telegrams contain the pressure, tire pressure temperature, individual serial number and status information (manufacturer, direction of rotation, operating mode etc.).

If a pressure loss is detected, the tire pressure monitor warning lamp (A1e66) in the instrument cluster (A1) is actuated by the TPM [RDK] control unit.

The TPM [RDK] control unit constantly monitors all input signals and output signals for faults. Detected faults that are relevant to function are entered into the fault memory.

### Discrete inputs

- Circuit 30
- Circuit 31

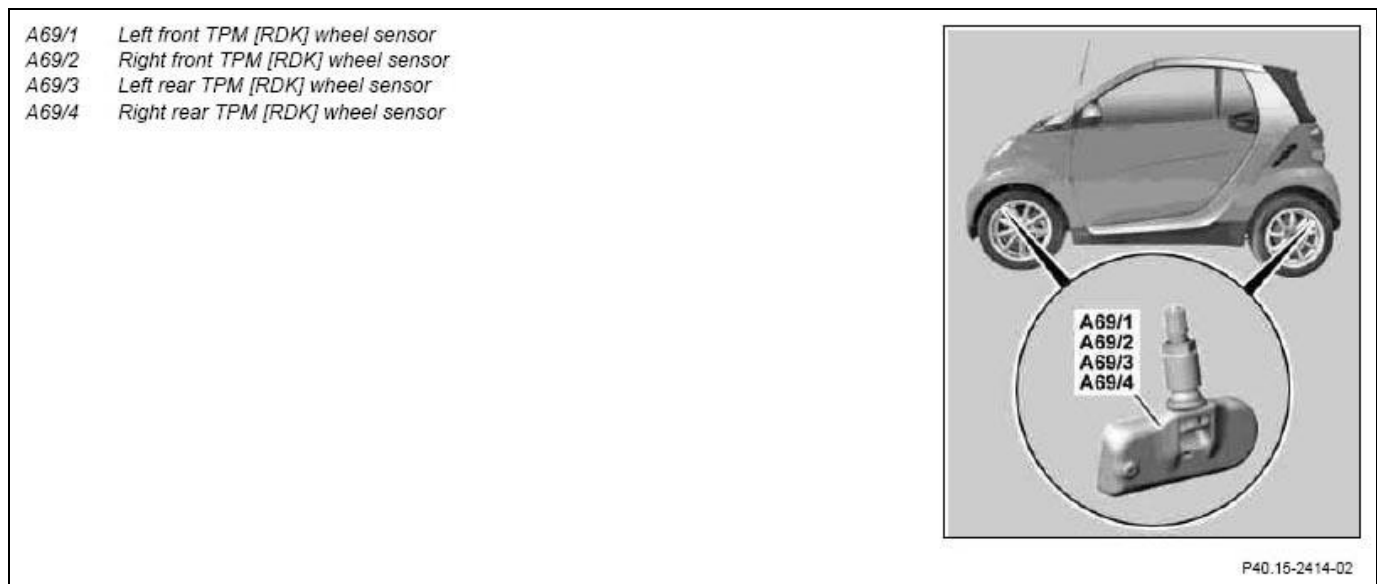
### CAN signals

The TPM [RDK] control unit is connected to the Control Area Network (databus/CAN Bus) (CAN) for data exchange.

## BASIC KNOWLEDGE > WHEEL SENSOR, COMPONENT DESCRIPTION - GF40.15-P-5126MCU >

### MODEL 451.3/4

Fig 1: Locating Wheel Sensors



Courtesy of MERCEDES-BENZ OF NORTH AMERICA.

### Location

The wheel sensors are fastened securely inside the respective rim.

## Task

The primary task of the TPM wheel sensors is to measure the pressure/temperature. The measuring range extends from  $p = 0$  and 5.5 bar.

While driving the tire pressure sensors transmit six data messages every  $t = 60$  s. Absolute pressure, tire pressure temperature, wheel identifier and status information (manufacturer, direction of turning, operating mode) are transmitted in these data messages. The TPM [RDK] control unit (N88) receives the data telegrams and assigns (after a learning phase) the wheel identifier to the wheels fitted to the vehicle.

As long as the TPM [RDK] control unit does not recognize the vehicle's own wheel identifier during initial commissioning, no fault message is displayed. After replacing a tire pressure sensor in each case the new tire pressure sensor is taught in and monitored with a new wheel identifier after driving for approx.  $t = 10$  min.

## Design

Each TPM wheel sensor is connected to the filling valve via a mounting bolt and forms an assembly unit with it. The assembly unit is attached to the rim flange using a counternut.

i The complete assembly unit has to be changed.

A wheel sensor consists of the following components:

- Pressure sensor
- Temperature sensor
- High-frequency transmitter
- Sensor battery for power supply (service life approx. 10 years)

## BASIC KNOWLEDGE > OVERVIEW OF SYSTEM COMPONENTS FOR TIRE PRESSURE MONITOR (TPM), COMPONENT DESCRIPTION - GF40.15-P-9996MCU >

### MODEL 451.3/4

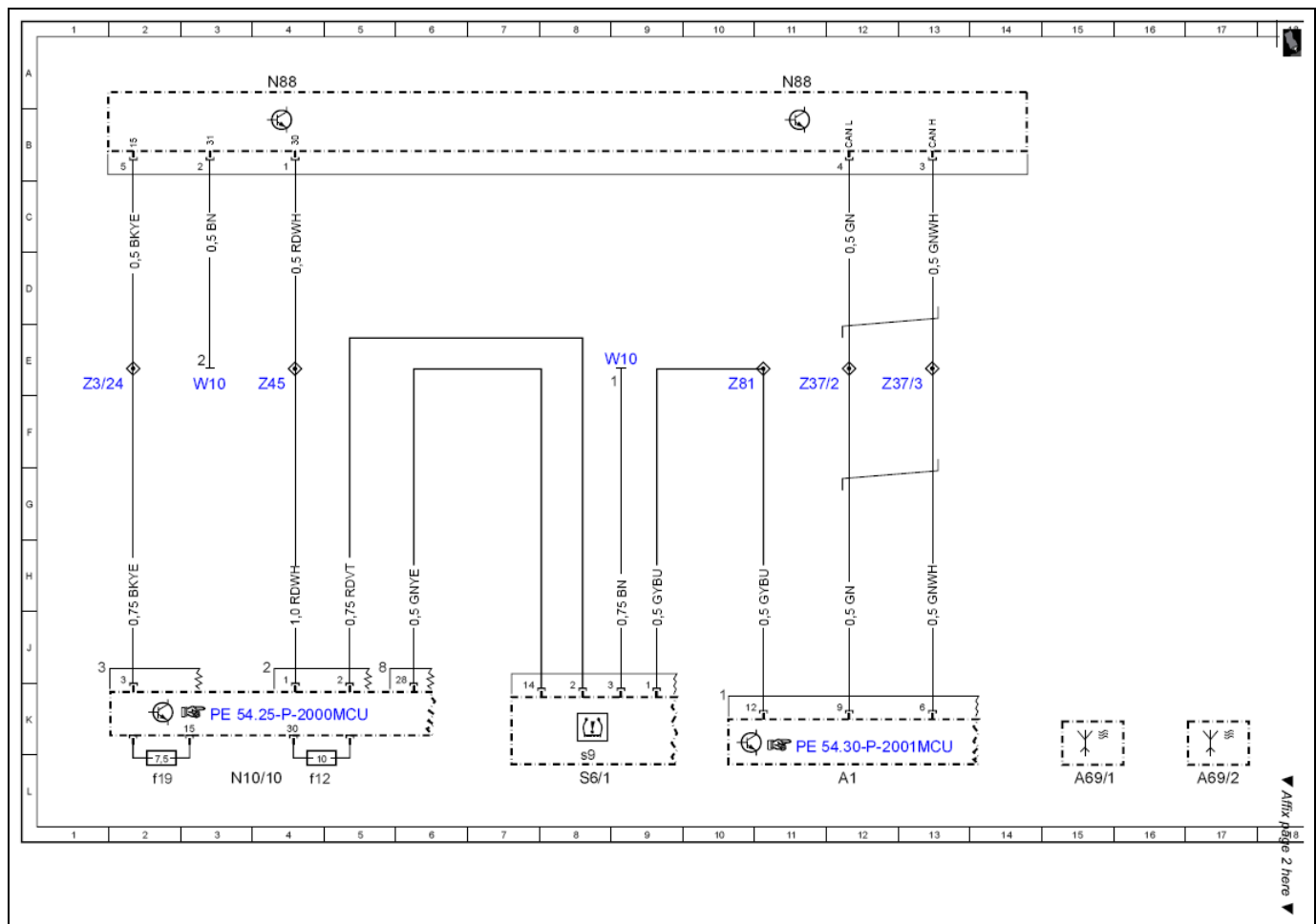
Instrument cluster, component description	A1	GF54.30-P-6000MCU
Wheel sensor, component description	A69/1, A69/2, A69/3, A69/4	GF40.15-P-5126MCU
Outside air temperature sender component description	B14	GF83.57-P-4000MCC
Component description for the SAM control unit	N10/10	GF54.21-P-4157MCU
Tire pressure monitor control unit, component description	N88	GF40.15-P-5124MCU
Cockpit switch group, component description	S6/1	GF54.25-P-4300MCU
Contents, function description, tire pressure monitor		GF40.15-P-0999MCU

## WIRING DIAGRAMS > WIRING DIAGRAM FOR TIRE PRESSURE MONITOR CONTROL UNIT - PE40.15-P-2101-97MCU >



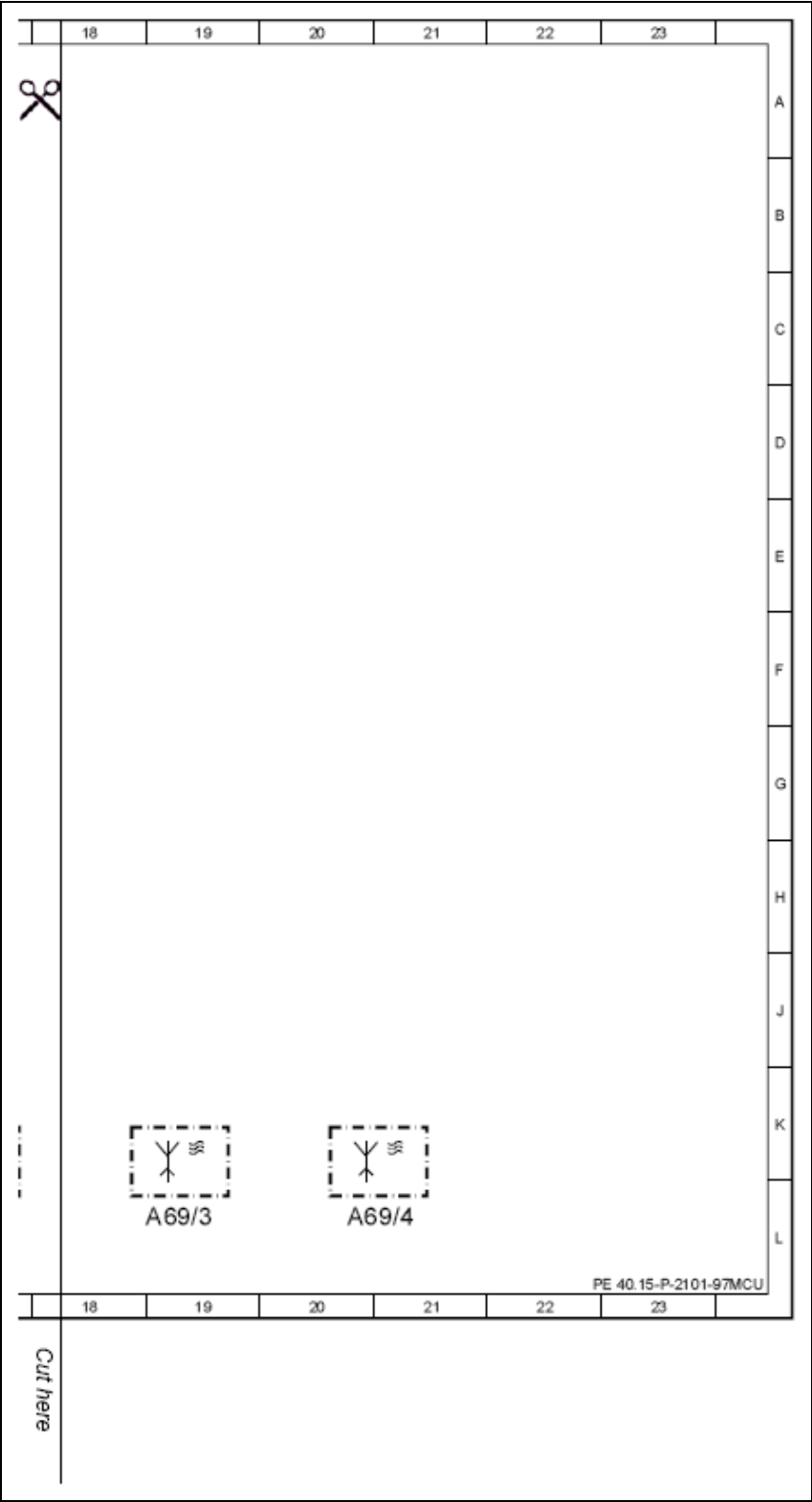
Code:	Designation:	Position:
A1	Instrument cluster	12L
A69/1	Left front TPM [RDK] wheel sensor	15L
A69/2	Right front TPM [RDK] wheel sensor	17L
A69/3	Left rear TPM [RDK] wheel sensor	19L
A69/4	Right rear TPM [RDK] wheel sensor	20L
N10/10	SAM control unit	3L
N10/10f12	Fuse 12	4L
N10/10f19	Fuse 19	2L
N88	TPM control module	4A
N88	TPM control module	11A
S6/1	Cockpit switch group	8L
S6/1s9	TPM [RDK] switch	8L
W10	Ground (battery)	3E
W10	Ground (battery)	9E
Z3/24	Circuit 15 (fused) connector sleeve, function	1E
Z37/2	CAN engine bus (low) connector sleeve	11E
Z37/3	CAN engine bus (high) connector sleeve	13E
Z45	ATA [EDW] sensor circuit 30 voltage supply connector sleeve	4E
Z81	Circuit 58d connector sleeve	10E

Fig 1: Tire Pressure Monitor Control System - Wiring Diagram (1 Of 2)



Courtesy of MERCEDES-BENZ OF NORTH AMERICA.

Fig 2: Tire Pressure Monitor Control System - Wiring Diagram (2 Of 2)



Courtesy of MERCEDES-BENZ OF NORTH AMERICA.

**WIRING DIAGRAMS > WIRING DIAGRAM FOR TIRE PRESSURE MONITOR CONTROL UNIT - PE40.15-P-2101MCU >**

**MODEL 451**

Wiring diagram for tire pressure monitor control unit	PE40.15-P-2101-99MCU
Legend of wiring diagram for tire pressure monitor control unit	PE40.15-P-2101-60MCU

Use of wiring diagrams	OV00.01-P-1901-03MCC
Search aid for all wiring diagram groups	OV00.01-P-1901MCU
Abbreviations for wiring diagrams	OV00.01-P-1001-27MC
Abbreviations of signal and circuit designations for wiring diagrams	OV00.01-P-1001-28MC
Location and assignment of line and connectors	GF00.19-P-1000MCU
Location and assignment of ground points	GF00.19-P-2000MCU
Location and assignment of Z connector sleeves (line connectors in wiring harness)	GF00.19-P-3000MCU
Further wiring diagrams	PE54.00-P-1100MCU

## **SPECIAL TOOLS > 129 589 01 21 00 RETAINER DEVICE - WS40.00-P-0025B >**

### **FG 40/01/Set B**

**MODEL 124, 126, 129, 140, 163, 164, 168, 169, 170, 171, 172, 197, 199, 201, 202, 203, 204, 207, 208, 209, 210, 211, 212, 215, 216, 218, 219, 220, 221, 230, 240, 245.20 /23, 251, 414, 450, 451, 452, 460, 461, 463, 636, 638, 639, 906**

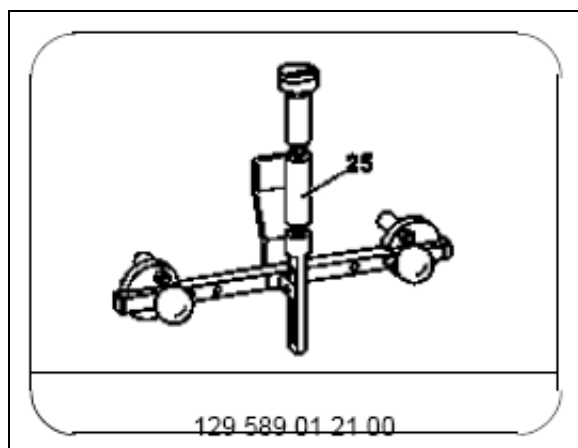
Part	129 589 01 21 25 Clamping nut (complete)	FG 40/Set B	WS40.00-P-0025-01B
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### **Use:**

Retainer for steering wheel in straight-ahead position.



Fig 1: Identifying Retainer Device (129 589 01 21 00)



Courtesy of MERCEDES-BENZ OF NORTH AMERICA.

## **SPECIAL TOOLS > 450 589 05 09 00 SOCKET WRENCH BIT - WS40.00-P-0060A >**

### **FG 40/Set A**

**MODEL 450, 451, 452**

### **Use:**

Socket wrench bit for loosening and securing wheel bolts on aluminum rims.


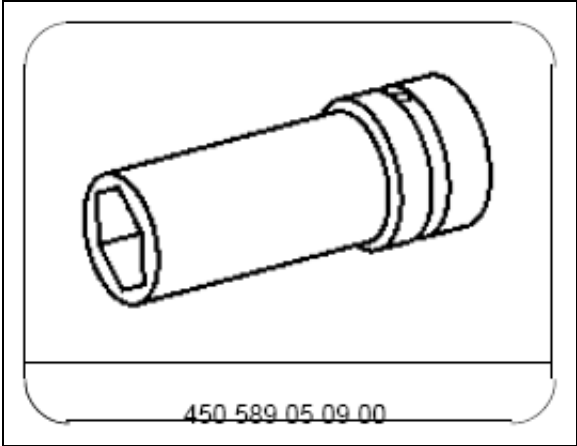
 **NOTE:**  
WAF 15 socket for wheel bolts, long version Smart no. 0007106.



Fig 1: Identifying Socket Wrench Bit (450 589 05 09 00)



Courtesy of MERCEDES-BENZ OF NORTH AMERICA.

**SPECIAL TOOLS > 230 589 00 99 01 PLUG-IN REVERSIBLE RATCHET - WS40.00-P-0061-01B >**

**FG40/Set B**

**FG 00/Set A/B/C/K**

**MODEL 230.467 /474 /475 /476**

**MODEL 164, 203, 209, 211, 219 with ENGINE 642**

**MODEL 221 with ENGINE 642**

**MODEL 251 with ENGINE 642**

**MODEL 463 with ENGINE 642**

**MODEL 450, 451, 452, 454**

**MODIFICATION NOTES**

15.4.08	Replacement for: 452 589 00 16 00 plug-in reversible ratchet	WS00.00-P-0241A
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**Use:**

Plug in reversible ratchet 9 x 12 mm for hexagon bit blades 5/16" (8 mm).

 **NOTE:**